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(i) Real Party in Interest

The real party in interest in this application is KONINKLIJKE PHILIPS ELECTRONICS N.V. by virtue of an assignment from the inventors recorded on October 16, 2001, at Reel 012274, Frame 0753.

(ii) Related Appeals and Interferences

There are no other appeals and/or interferences related to this application.

(iii) Status of Claims

Claims 1-3, 5-14, 16-19 and 21-24 stand finally rejected by the Examiner, claims 4, 15 and 20 having been cancelled. The final rejections of claims 1-3, 5-14, 19-19 and 21-24 are herein appealed.

(iv) Status of Amendments

There was one Response filed on December 6, 2006, after final rejection of the claims on September 18, 2006, this Response having been considered by the Examiner.

(v) Summary Of Claimed Subject Matter

The subject invention relates to copy protection of information stored on an optical record carrier. To that end, the optical record carrier includes an integrated circuit

In particular, as claimed in claim 1, the subject invention includes "a record carrier having a first area for storing information, and a second area, the second area comprising an integrated circuit". This is shown in Fig. 1, and described in the specification on page 4, lines 24-29, in which a compact disk includes a first area for storing information, this first area including tracks 3, and a second area including an integrated circuit 4.

According to the subject invention, as claimed in claim 1, the integrated circuit comprises "transmitting means for transmitting additional information". This is shown in Fig. 3, and described in the specification on page 6, lines 25-29, in which a copy protection algorithm 14 in the integrated circuit 4 generates a descrambling key which is applied to a transmitter 11 for transmitting the descrambling key via an antenna 15.

Further, according to the subject invention as claimed in claim 1, the integrated circuit comprises "receiving means for receiving a power supply signal for supplying power to the integrated circuit, the receiving means comprising a light-sensitive sensor". This is shown in Fig. 3 and described in the specification on page 6, lines 20-24, in which a photodiode 12 receives light from an LED on the playback device, where the energy

for power supply of the integrated circuit on the record carrier is obtained from the signal 13 coming from the photodiode 12.

According to the subject invention as claimed in claim 1, the integrated circuit comprises "means for generating a first communication channel operating at a first frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 21-27, in which the power signal, on which additional information is modulated, is sent to the integrated circuit via an optical channel which operates at a frequency of 375 THz at a wavelength of 800 nm (page 2, lines 30-33).

Finally, according to the subject invention as claimed in claim 1, the integrated circuit comprises "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 27-30, in which the descrambling key is transmitted via a high frequency radio signal which operates in a frequency range of 0.5-2 GHz (page 2, line 34 to page 3, line 1).

According to claim 6, in the subject invention, the integrated circuit further comprises "a memory in which the additional information is stored". This is described in the specification on page 2, line 7, where it is indicated that the integrated circuit may include a memory.

The subject invention further relates to a method of manufacturing a record carrier. As claimed in claim 9, the method

includes "receiving information" and "providing information on the record carrier". This is shown in Fig. 1, and described in the specification on page 4, lines 24-26, in which information is stored in tracks on the record carrier.

In addition, the method further includes "providing an integrated circuit on the record carrier, the integrated circuit comprising transmitting means for transmitting additional information and receiving means for receiving a power supply signal for supplying power to the integrated circuit, the receiving means comprising a light-sensitive sensor". This is shown in Figs. 1 and 3, and described in the specification on page 4, lines 27-29, and page 6, lines 20-29, in which the integrated circuit is described as having transmitting and receiving means, and that a copy protection algorithm 14 in the integrated circuit 4 generates a descrambling key which is applied to a transmitter 11 for transmitting the descrambling key via an antenna 15, and a photodiode 12 receives light from an LED on the playback device, where the energy for power supply of the integrated circuit on the record carrier is obtained from the signal 13 coming from the photodiode 12.

In addition, the invention further describes the provided integrated circuit as comprising "means for generating a first communication channel operating at a first frequency". This is shown in Fig. 3, and described in the specification on page 7, lines 21-27, in which the power signal, on which additional information is modulated, is sent to the integrated circuit via an

optical channel which operates at a frequency of 375 THz at a wavelength of 800 nm (page 2, lines 30-33).

Furthermore, the invention describes the provided integrated circuit as comprising "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 27-30, in which the descrambling key is transmitted via a high frequency radio signal which operates in a frequency range of 0.5-2 GHz (page 2, line 34 to page 3, line 1).

The subject invention, as claimed in claim 12, further relates to a system for protecting information on a record carrier, the system comprising a device for reading and/or writing the information on the record carrier, and the record carrier. This is shown in Fig. 2 and described in the specification on page 4, line 30 to page 5, line 24, in which a device 6 is adapted to read information from (and alternatively write information to tracks on the record carrier.

As claimed in claim 12, the system of the subject invention further includes "transmitting means and receiving means for transmitting and receiving additional information, and the record carrier comprising transmitting means for transmitting additional information and receiving means for receiving a power supply signal for supplying power to the integrated circuit". This is shown in Fig. 3, and described in the specification on page 4, lines 27-28,

and on page 5, 25-27, in which it is disclosed that the device has transmitting and receiving means corresponding to transmitting and receiving means of the integrated circuit, for transmitting a power supply signal and additional information to the integrated circuit, and for receiving additional information from the integrated circuit.

The system as claimed in claim 12 further specifies that "the transmitting means and receiving means of the record carrier are integrated in an integrated circuit, and the receiving means of the record carrier comprise a light-sensitive sensor". This is shown in Fig. 3, and described in the specification on page 6, lines 20-24, in which a photodiode 12 receives light from an LED on the playback device, where the energy for power supply of the integrated circuit on the record carrier is obtained from the signal 13 coming from the photodiode 12.

According to the subject invention as claimed in claim 12, the integrated circuit comprises "means for generating a first communication channel operating at a first frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 21-27, in which the power signal, on which additional information is modulated, is sent to the integrated circuit via an optical channel which operates at a frequency of 375 THz at a wavelength of 800 nm (page 2, lines 30-33).

Finally, according to the subject invention as claimed in claim 12, the integrated circuit comprises "means for generating, simultaneously with said first communication channel, a second

communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 27-30, in which the descrambling key is transmitted via a high frequency radio signal which operates in a frequency range of 0.5-2 GHz (page 2, line 34 to page 3, line 1).

In addition to the above, as claimed in claim 19, the subject invention relates to a device for reading a record carrier as claimed in claim 1, in which the device includes "detection means for detecting optically readable signs representing the information". This is shown in Fig. 2, and described in the specification on page 4, line 30 to page 5, line 24, in which a detector 42 detects light reflected from the record carrier, the light being modulated by the information carried by the record carrier.

In addition, the device includes "receiving means and transmitting means for reading and receiving additional information stored in the integrated circuit". This is shown in Fig. 3, and described in the specification on page 4, lines 27-28, and on page 5, 25-27, in which it is disclosed that the device has transmitting and receiving means corresponding to transmitting and receiving means of the integrated circuit, for transmitting a power supply signal and additional information to the integrated circuit, and for receiving additional information from the integrated circuit.

As claimed in claim 22, the device as claimed in claim 19 includes "write means for providing optically readable signs on a

recordable record carrier". This is shown in Fig. 2 and described in the specification on page 6, lines 6-9, where it is stated "the device also comprises write means for providing optically readable signs on the record carrier 1."

The subject invention, as claimed in claim 23, also relates to an integrated circuit, in which the integrated circuit comprises "transmitting means for transmitting additional information". This is shown in Fig. 3, and described in the specification on page 6, lines 25-29, in which a copy protection algorithm 14 in the integrated circuit 4 generates a descrambling key which is applied to a transmitter 11 for transmitting the descrambling key via an antenna 15.

Further, according to the subject invention as claimed in claim 23, the integrated circuit comprises "receiving means for receiving a power supply signal for supplying power to the integrated circuit, the receiving means comprising a light-sensitive sensor". This is shown in Fig. 3 and described in the specification on page 6, lines 20-24, in which a photodiode 12 receives light from an LED on the playback device, where the energy for power supply of the integrated circuit on the record carrier is obtained from the signal 13 coming from the photodiode 12.

According to the subject invention as claimed in claim 23, the integrated circuit comprises "means for generating a first communication channel operating at a first frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 21-27, in which the power signal, on which additional information

is modulated, is sent to the integrated circuit via an optical channel which operates at a frequency of 375 THz at a wavelength of 800 nm (page 2, lines 30-33).

Finally, according to the subject invention as claimed in claim 23, the integrated circuit comprises "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency". This is shown in Fig. 3 and described in the specification on page 7, lines 27-30, in which the descrambling key is transmitted via a high frequency radio signal which operates in a frequency range of 0.5-2 GHz (page 2, line 34 to page 3, line 1).

(vi) Grounds of Rejection to be Reviewed on Appeal

- A. Whether the invention, as claimed in claims 1-3, 5-7, 9-14, 16-19 and 21-24, is unpatentable, under 35 U.S.C. 103(a), over European Patent Application No. EP0996124A1 to Ono in view of U.S. Patent 5,790,489 to O'Connor and further in view of U.S. Patent 6,892,024 to Shimizu.
- B. Whether the invention, as claimed in claim 8, is unpatentable, under 35 U.S.C. 103(a), over Ono in view of O'Connor, further in view of Shimizu, and further in view of U.S. Patent 5,327,213 to Blake.

A. The 35 U.S.C. 103(a) Rejection of Claims 1-3, 5-7, 9-14, 16-19 and 21-24

The Ono et al. patent discloses an optical disk and recording/reproduction apparatus using the same, in which a semiconductor IC chip is incorporated in the optical disk and includes a memory for storing certain control information. The IC chip further includes receiver means for receiving power in the form of a signal to be supplied to the circuitry of the IC chip, and transmitter-receiver means for the communication of control information between the optical disk, i.e., the IC chip, and the recording/reproducing apparatus.

The O'Connor patent discloses a smart compact disk including a processor and a transmission element in which a compact disk has a processor having a photosensitive array which, when illuminated by a laser in a compact disk read head, generates a current used to energize a transmission element optically coupled to the compact disk reader for transmitting a stored information signal.

The Shimizu et al. patent discloses an information recording apparatus for receiving and recording two separate data signals. In particular, two channel picture image signals A1 and A2 are received, digitized in A/D converters 11 and 12, the resulting picture image data D1 and D2 are MPEG encoded in MPEG encoders 13 and 14, and stored in logical format buffer 17. As described at col. 5, line 49 to col. 6, line 2, the D1 data is stored in memory area 17A while the D2 data is stored in memory area 17B. Further,

as described at col. 5, lines 61-65, "Moreover, the logical format buffer 17 outputs the picture image data D1 stored in the memory area 17A or the picture image data D2 stored in the memory area 17B to the logical formatter 18 according to a read control signal output from the CPU 30."

The subject invention also relates to an optical disk having a integrated circuit incorporated therein. In addition, the subject invention, as claimed in claim 1, further includes the limitation that the integrated circuit of the optical disk having "means for generating a first communication channel operating at a first frequency" and "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency".

As described in the specification on page 2, line 26 to page 3, line 4, "the communication signals [on the first and second communication channels] are decoupled so that disturbances can be reduced or avoided".

The Examiner indicates that the limitation "said integrated circuit comprises means for generating a first communication channel operating at a first frequency; and means for generating a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency" is disclosed in Ono at col. 7, line 55 to col. 8 line 58 and Figs. 4 and 5 therein.

The section of Ono et al. indicated by the Examiner describes two separate methods/means for sending signals to the communication circuit 27 for control information transfer and power supply, i.e., a lower transmission band and a higher transmission band, depending on the main information recording band or the reproduction band in the case of multiple-speed reproduction of the main information "so that the signals to not affect the recording and reproduction of the main information."

However, claim 1 (as well as claims 9, 12 and 23) specifically recites "means for generating a first communication channel operating at a first frequency; and means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency".

Appellants submit that there is no disclosure in Ono et al. that the method/means for effecting the lower and higher transmission bands are used at the same time. In fact, as indicated in Ono et al. on page 2, lines 49-53, "Accordingly, one of the following two kinds of means are required depending on the band of the signals transmitted to the electromagnetic coupling means for control information and power supply (emphasis added)."

Hence, Appellants submit that Ono et al. neither discloses or suggests "means for generating a first communication channel operating at a first frequency" and "means for generating, simultaneously with said first communication channel, a second

communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency".

While O'Connor discloses an optical disc having an integrated circuit including receiving means in the form of a light sensitive sensor, Appellants submit that O'Connor does not supply that which is missing from Ono et al., i.e., "means for generating a first communication channel operating at a first frequency" and "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency".

The Examiner now indicates:

"Shimizu discloses an information recording apparatus includes a transferring device that separately and simultaneously receives a first and second data supplied through a first channel and a second channel, and simultaneously transfers first and second data streams to a storing device (see claims 3, 6, and 8). Shimizu further discloses the optical pick up 22 is for irradiating a light beam to the DVD so as to record RNZI. The optical pick up 22 also converts the light-beam reflected by the DVD in to an electric signal (see col. 6 lines 40-45 and figure 1). Therefore in light of the teaching in Shimizu and O'Connor it would have been obvious to modify Ono by generating second channel simultaneously with first channel in order to store two information into the storing device."

Appellants submit that while Shimizu et al. discloses two channels of data being simultaneously stored in a single storage device, by merely reading Shimizu et al., it should be apparent that the channels in Shimizu et al. are not communication channels as envisioned in, for example, Ono et al. and the subject invention. In particular, the two communication channels in Ono et al. and in the subject invention, enable an IC implanted in an

optical disk to communicate with circuitry external to the optical disk. In Shimizu et al., there are separate circuit lines for receiving information for forming a single recording signal for storage on the optical record carrier. There is no transmission of information from a device to an integrated circuit arranged on an optical record carrier. As such, there is no concern of cross-interference. Appellants further would like to point out that while, in Shimizu et al., the data signals D1 and D2 are disclosed as being stored at different data transfer rates, this has nothing to do with the different first and second frequencies of the communication channels of Ono et al. or of the subject invention.

Appellants therefore submit that Shimizu et al., as with O'Connor, does not supply that which is missing from Ono et al., i.e., "means for generating a first communication channel operating at a first frequency" and "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency".

In the Advisory Action, the Examiner states "In response to Applicant's arguments against the Ono references individually (i.e. there is no disclosure in Ono that the method/means for effecting the lower and higher transmission bands are used at the same time (page 11 in the remarks)), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)."

Appellants have merely countered statements made by the Examiner. The Examiner made statements of what was being taught by the references, and Appellants have argued against each of these statements.

B. The 35 U.S.C. 103(a) Rejection of Claim 8

The above arguments concerning Ono et al., O'Connor and Shimizu et al. are incorporated herein.

The Blake et al. patent discloses a configuration control of mode coupling errors, and relates to fiber optic gyroscopes uses for rotation sensing. Blake et al. further discloses two different forms of coupling, to wit, an electromagnetic coupling and an optical coupling.

Claim 8 depends from claim 7/1, and claims "the first frequency is in an optical frequency range and the second frequency is in a radio frequency range".

First, the Examiner indicates that Blake et al. is "in the same field of endeavor" as Ono et al. and O'Connor.

Appellants urge that the Examiner is mistaken. In particular, both Ono et al. and O'Connor relate to circuitry on a compact disc and communicating signals to/from the circuitry. Blake et al., on the other hand, has nothing to do with compact discs. Rather, Blake et al. concerns an interferometric fiber optic gyroscope. In particular, as indicated in Blake et al. at col. 11, lines 15-28:

"The present invention provides error reducing configurations for an optical fiber rotation sensor in which rotation information in the form of phase differences between a pair of substantially coherent electromagnetic waves entering from a polarizer to propagate in opposite directions through a birefringent optical fiber coil to thereafter impinge on a photodetector after exiting through the polarizer. These configurations have optical path lengths therein and birefringent axes relationships therein determined with respect to the autocorrelation of the source chosen for the system. As a result, both amplitude related and intensity related phase errors due to polarization mode coupling can be eliminated or reduced economically."

Appellants submit that it is unclear how this could be used in Ono et al. and/or O'Connor in that the Blake et al. system is for measuring rotation, while such a measurement is not used at all in either Ono et al. or O'Connor.

Further, Appellants submit that Blake et al. does not supply that which is missing from Ono et al., O'Connor and Shimizu et al., i.e., "means for generating a first communication channel operating at a first frequency" and "means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency".

The Examiner now states "In response to applicant's argument that the Blake et al reference differs from cited references Ono and O'Connor the Examiner respectfully disagrees. Both compact disc and fiber optics are record carriers, and claim 1 does not specifically recite the record carrier is an optical disc or fiber optic."

It appears that the Examiner has no understanding of what is being described in Blake et al. In particular, there is no record carrier of any kind (neither "optical disk" or "fiber optic") in Blake et al. Rather, Blake et al. discloses the application of light to the fiber optic coil and the detection of light by a photodetector.

Appellants therefore believe that Blake et al. in combination with Ono et al., O'Connor and Shimizu et al., neither discloses nor suggests the invention as claimed in claim 8.

Based on the above arguments, Appellants believe that the subject invention is not rendered obvious by the prior art and is patentable thereover. Therefore, Appellants respectfully request that this Board reverse the decisions of the Examiner and allow this application to pass on to issue.

Respectfully submitted,

by /Edward W. Goodman/
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Attorney

(viii) Claims Appendix

1. (Previously Presented) A record carrier having a first area for storing information, and a second area, the second area comprising an integrated circuit, characterized in that the integrated circuit comprises, integrated therein,:

5 transmitting means for transmitting additional information; and

 receiving means for receiving a power supply signal for supplying power to the integrated circuit, the receiving means comprising a light-sensitive sensor,

10 wherein said integrated circuit further comprises:

 means for generating a first communication channel operating at a first frequency; and

 means for generating, simultaneously with said first communication channel, a second communication channel operating at
15 a second frequency, the first frequency being substantially unequal to the second frequency.

2. (Previously Presented) The record carrier as claimed in claim 1, characterized in that the receiving means also receives additional information.

3. (Previously Presented) The record carrier as claimed in claim 1, characterized in that the integrated circuit is contactlessly readable.

4. (Cancelled).

5. (Previously Presented) The record carrier as claimed in claim 1, characterized in that the additional information comprises a key for scrambling and/or descrambling the information.

6. (Previously Presented) The record carrier as claimed in claim 5, characterized in that the integrated circuit further comprises:
a memory in which the additional information is stored.

7. (Previously Presented) The record carrier as claimed in claim 1, characterized in that the record carrier is a pre-recorded record carrier.

8. (Previously Presented) The record carrier as claimed in claim 1, characterized in that the first frequency is in an optical frequency range and the second frequency is in a radio frequency range.

9. (Previously Presented) A method of manufacturing a record carrier, the method comprising the steps of:

- a. receiving information;
- b. providing information on the record carrier;
- 5 c. providing an integrated circuit on the record carrier, the integrated circuit comprising transmitting means for transmitting

additional information and receiving means for receiving a power supply signal for supplying power to the integrated circuit, the receiving means comprising a light-sensitive sensor,

10 wherein said integrated circuit comprises:

means for generating a first communication channel operating at a first frequency; and

means for generating, simultaneously with said first communication channel, a second communication channel operating at
15 a second frequency, the first frequency being substantially unequal to the second frequency.

10. (Previously Presented) The method as claimed in claim 9, characterized in that the receiving means also receives additional information.

11. (Previously Presented) The method as claimed in claim 9, characterized in that the method comprises the further step of:

d. providing additional information in the integrated circuit.

12. (Previously Presented) A system for protecting information on a record carrier, the system comprising a device for reading and/or writing the information on the record carrier, and the record carrier, the device comprising transmitting means and receiving
5 means for transmitting and receiving additional information, and the record carrier comprising transmitting means for transmitting

additional information and receiving means for receiving a power supply signal for supplying power to the integrated circuit, characterized in that the transmitting means and receiving means of
10 the record carrier are integrated in an integrated circuit, and the receiving means of the record carrier comprise a light-sensitive sensor,

wherein said integrated circuit comprises:

means for generating a first communication channel
15 operating at a first frequency; and

means for generating, simultaneously with said first communication channel, a second communication channel operating at a second frequency, the first frequency being substantially unequal to the second frequency.

13. (Previously Presented) The system as claimed in claim 12, characterized in that the receiving means of the record carrier also receives additional information.

14. (Previously Presented) The system as claimed in claim 12, characterized in that the integrated circuit is contactlessly readable.

15. (Cancelled).

16. (Previously Presented) The system as claimed in claim 12, characterized in that transmitting means of the device comprises an

optical transmitter, the receiving means of the device a radio receiver, the receiving means of the integrated circuit comprises a
5 light-sensitive sensor, and the transmitting means of the integrated circuit comprises a radio transmitter.

17. (Previously Presented) The system as claimed in claim 12, characterized in that the first communication channel is adapted for supplying power to the integrated circuit and for transmitting data.

18. (Previously Presented) The system as claimed in claim 12, characterized in that the additional information comprises an encryption algorithm for safety protection of the communication channels.

19. (Previously Presented) A device for reading a record carrier as claimed in claim 1, said device comprising:

detection means for detecting optically readable signs representing the information, and receiving means and transmitting
5 means for reading and receiving additional information stored in the integrated circuit.

20. (Cancelled).

21. (Previously Presented) The device as claimed in claim 19, wherein the device comprises write means for providing optically readable signs on a recordable record carrier.

22. (Previously Presented) A device for reading additional information present in the integrated circuit on the record carrier as claimed in claim 1, wherein the device comprises:

receiving means and transmitting means for reading and
5 receiving additional information stored in the integrated circuit.

23. (Previously Presented) An integrated circuit comprising transmitting means for transmitting additional information, and receiving means for receiving a power supply signal for supplying power to the integrated circuit, the receiving means comprising a
5 light-sensitive sensor, wherein said integrated circuit comprises:

means for generating a first communication channel
operating at a first frequency; and

means for generating, simultaneously with said first
communication channel, a second communication channel operating at
10 a second frequency, the first frequency being substantially unequal
to the second frequency.

24. (Previously Presented) The integrated circuit as claimed in claim 23, wherein the receiving means also receives additional information.

(ix) Evidence Appendix

There is no evidence which had been submitted under 37 C.F.R. 1.130, 1.131 or 1.132, or any other evidence entered by the Examiner and relied upon by Appellant in this Appeal.

(x) Related Proceedings Appendix

Since there were no proceedings identified in section (ii) herein, there are no decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. 41.37.